Chapter Title: WAIS Clients and User Interfaces

Introduction: Searchers, Explorers, Information Agents

In an ideal world, every user would have an information agent -- a software representative that would go out on the network, seek the best information and return it to the user in a timely fashion. Information agents would be intelligent enough to discern user interests from previous activity, responsive enough to update their understanding of the user's interests, flexibile enough to accomodate direct searches as well as automatic searches, and transparent enough so that normal work would not be interrupted.

While some rather sophisticated agent technology is now making its way to market (see box on agent technology), several WAIS client have offered some basic agent capabilities since the system was developed. The best example is Apple's Rosebud prototype, a client that used "reporters" to search for information on specified topics. Some of Rosebud has been implemented in AppleSearch, although that product does not currently support WAIS or Z39.50 searches.

The publicly available Mac clients (AND OTHERS?) support "dynamic folders," a construct in which saved questions can be automated to search for updated information on a regular basis. This is an inflexible routine, however; the questions will search only the specific databases requested by the user when the question was saved. In addition, this feature is not at all obvious to users and appears to be scarcely used.

Thus, while WAIS provides the backbone for information agents, sophisticated information agent technology has yet to make its way to users' desktops. Later in this chapter, we will discuss the work done on Rosebud and other prospects for information agents. Most of the chapter, however, will concentrate on existing WAIS clients.

There are three basic classes of WAIS clients -- searchers, explorers and information agents. One way to think about these types of clients is to compare them to a book. Books traditionally offer three ways to get at the information between the covers: through the table of contents, through the index and simply by browsing through the pages.

These By-laws may be amended by the affirmative vote of 2/3 of the directors in office at any meeting of the Board of Directors, except that any change in the number of directors mutbe approved by the membership by a 2/3 vote.

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The table of contents is a hierarchical construct. It provides general descriptions of the contents of each chapter. Some books provide outlines of each chapter. Someone interested in the general topic of a book might skim the table of contents for a subject of special interest and then go right to the pages of an interesting chapter.

This is similar to the explorer's interface. Take as an example, Gopher, the leading Internet technology for browsing information. Gopher presents the user with several folders of information. Every time the user selects one, a new level containing both documents and subfolders is revealed. The user is moving from the very general to more and more specific groupings of information. Information is located by narrowing in on it, folder by folder.

*****FIGURES HERE OF GOPHER DISPLAY -- 2 figures**

Gopher's hierarchical structure is well-suited to browsing. It's an excellent way to learn what information exists on a general subject. It's kind of like walking through the stacks of a library, picking up interesting books and browsing through them.

Many databases are accessible both through Gopher and through WAIS. In these cases the Gopher server offers an option for WAIS searching. While this is a much friendlier interface than many other WAIS clients, the WAIS functionality is rather limited and the user is cut off from WAIS servers that do not support Gopher.

In short, just as walking through library aisles is not an efficient way to find specific references, Gopher as a front end to WAIS is not well-suited to the task of quickly collecting documents from several sources.

The searcher interfaces, on the other hand, act more like a book's index. The index, of course, is a listing of references in the book, with exact page numbers given. It lets you find the place where a specific reference is located. Similarly, the WAIS searchers let users search a database for occurences of words and phrases. These programs are the more efficient and effective way to get the information that's out there. Of all the gigabytes of searchable data that exists on the Internet, WAIS searchers can find the two or three documents a user is looking for.

Article VI Contracts, Checks, Deposits and Funds

Section 1. Contracts
The Board of Directors may authorize any officer or officers of the organization in addition to the officers so authorized by these by-laws, to enter into any contract or execute and deliver any instrument in the name of and on behalf of the corporation; such authority mut be in writing and may be general or confined to specific instances.

Section 2. Checks, Draft, etc
All checks, drafts or other order for the payment of money, notes or other evidence of indebtedness issued in the name of the organization shall be signed by such officer or officers of the organization and in such manner a shall from time to time be determined by written resolution of the Board of Directors. In the absence of such determinations by the Board of Director, such instruments shall be signed by the secretary- treasurer and countersigned by the president of the organization.

Section 3. Deposits
All funds of the organization shall be deposited from time to time to the credit of the organization in such banks, truest companies or other depositories as the Board of Directors may select.

Section 4. Gifts
The Board of Directors may accept on behalf off the organization any contribution, gift, bequest of devise for the general purposes or for any special purpose of the organization.

Article VII: Office and Books

Section 1. Office
The office of the organization shall be located at such place as the Board off Directors may from time to time determine.

Section 2. Books
There shall be kept at the office of the organization correct books o accounts of the activities and transactions of the organization including a minute book which shall contain copy of the Articles of Incorporation, a copy of these By-laws, and all minute of the Board of Directors.

Article VIII: Corporate Seal
The seal of this corporation shall bear the name of the organization words and figures showing that it was incorporated in the state o California in the year 1979.

Article IX: fiscal Year
The fiscal year shall begin January 1st and shall end December 31st.

Article X Amendments

Finally, a fast-growing technology called World Wide Web lets users flip through pages, scanning the text and jumping to other parts via hypertext links. While the number of Web servers is still small compared to WAIS and Gopher, it is a powerful interface for exploring the Internet. It is also an explorer's interface. NCSA's Mosaic is the premier Web client and the only interface that integrates Web, Gopher and WAIS, although at this writing the integration of WAIS leaves something to be desired. Mosaic points the way to a future information client, with many tools integrated in one, but it does not address the question of information agents.

What about those agents? They certainly don't fit into the book metaphor. A more useful comparison here is a newspaper. The agent is like a news team of reporters and editors working for you, not only collecting information, but analyzing it, discarding the irrelevant or unreliable, marking the sources of material and presenting you with a personalized newspaper. The research on this front is represented by Apple's Rosebud project, which was developed in 1989? as part of the original WAIS research project. An emasculated version of Rosebud is currently on the market as AppleSearch. This program is not currently able to retreive information from the Internet, so its usefulness is marginal. Even so, Rosebud was the first attempt at creating an information agent client, and Apple's approach has implications for future development.

This chapter provides an overview of the existing client programs, the techical underpinings of these interfaces, and the future directions these programs are taking.

??goes where??For novice users, WAIS is less intuitive and more forbidding than Gopher or WWW. Users quickly find that the system is really pretty easy to use, but there is a learning curve with most of WAIS searcher clients. Perhaps this is because, unlike Gopher or Web, WAIS clients offer a blank slate upon start-up, rather than a number of choices or a rich environment. This chapter should get novice users up and running. ????

Elements of WAIS Searching

Section 4. Chairperson
One member of each committee shall be appointed chairperson thereof by a majority vote of all members of the committee. This chairperson shall remain in office until hiss or her successor shall have been duly elected and qualified.

section 5. Advisors
Each committee shall have as its advisor one member of the Board o Director, as chosen by the Board. This advisor shall have, among his or her duties, the overseeing of the projects of the committees. He or she shall keep the Board of Directors fully informed as to committee decisions and development. This advisor may, if duly elected according to the procedures outlined in Section 4 above, serve as chairperson of the committee e or she has been appointed to advisee.

Section 6. Vacancies
Vacancies in the membership of any committee may be filled from the general membership of the organization by appointment of the remaining committee members or the Board of Directors.

Section 7. Quorum
Unless otherwise provided in the resolution of the Board of Directors designating a committee, a majority of the whole committee shall constitute a quorum and the act of a majority of the members present at a meeting at which a quorum is present shall be the act of the committee.

Section 8. Other Committees.
The Board of Directors may, as it deem fit, establish other standing committees or combine the duties o the Standing Committee initially authorize in these by-laws. The Board of Director may establish Special Committees from time to time, which committees shall be subject to the regulations regarding committees as stated in these by-laws. The Board of Directors may, however, if deemed necessary, appoint both members and chairperson of these Special Committee in lieu of regular appointment.

Section 9. Rules
Each committee may adopt rules for its own government, so long as such rules are not inconsistent with these by-laws or with rules adopted by the Board of Directors.

Section 10. Advisory Council
The Board of Directors shall appoint, by majority vote of it members, an Advisory Council for this organization. The duties of this council shall be to advise the Board and the organization, to provide craft expertise, and to generally aid the development of the organization. The initial number of members of this council would be ten persons, to which number persons could be added from time to time as the Board of Directors deems fit. Membership of the council would continue until such time a the member see fit to resign or is removed, for just cause, by a majority vote of the Board of Directors. Member of the advisory council would receive the same benefits as sustaining members and friends, as stated in Article II above. In addition, qualification for professional membership in the organization shall entitle him or her to the same voting privileges as other professional members.

Database searching with WAIS differs from other search systems in several regards. The basics of WAIS include natural language queries, relevance feedback, the ability to search multiple databases with the same query, relevance ranking and the ability to ask saved questions automatically.

Natural language. With natural language queries, users simply type in questions or keywords, without worrying about computer syntaxes. For instance, the user might write, "I'm looking for information about tobacco sales in Asia." The server does not "understand" this question. Rather it ignores the common words such as "for," "about," "in," etc. and searches for occurences of the rare words. In other words, the server does a keyword search for the rare words in the query.

Relevance Feedback. When users finds good documents or especially relevant sections, they can point it back at the system, in effect saying, "Here, find me more like this one." This adds all the words in the selection or document to the query. This is powerful because it lets users add many more words to the search than they would have thought of on their own.

Search multiple databases. This is powerful because users can effectively create customized libraries to search in. It provides automatic cross-referencing of hits in different databases, and, using relevance feedback, users can mix and match sources to fine-tune searches.

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Interfaces for the Searcher

When you know what information you want and you don't want to spend much time getting it, then a searching interface is appropriate. The first of these WAIS interfaces --WAIStation, the original WAIS client developed by Thinking Machines, Apple and Dow Jones -- was designed for the highly paid accountants at Peat Marwick who wanted to research new prospects and keep up on companies and industries. There are now several interfaces built on the same architecture as the original Macintosh client and WAIS is available on DOS, Windows, NeXT, Unix and dialup systems, as well as Mac. (WAIStation is now two generations

provided in such resolution, shall have and exercise the authority of the Board of Directors in the management of the organization.

Section 2. Standing Committees

Standing committees shall by authorized and terminated by the Board of Directors at any duly noticed meeting according to a two-thirds majority vote. All standing committees shall be responsible for their own secretarial and bookkeeping duties. The standing committees initially authorized are:

a) Education Committee -- This committee shall oversee all classes and seminars provided by the organization. The committee shall be responsible for the election and supervision of the appropriate instructor or speaker for these classes and seminars, ass well as to select or cause to be selected space or facilities and remuneration for these classes and seminars. The committee shall keep the membership fully informed of all it activities.

b) Exhibitions Committee / Events -- This committee shall oversee all exhibits to be held under the auspices of the organization. The committee shall be responsible for securing appropriate space and all other necessary arrangements for these exhibits. The committee shall secure jurors for the various exhibitions, and shall duly publicize these exhibits to ~~both the~~ organizational membership and the general public.

c)Journal Committee --This committee shall oversee the publication of an annual Journal of the Book Art, to be disseminated to both the organizational membership and the general public through the distribution effort of this committee. Duties of the committee shall include the securing of research relating to various book arts projects as well as all standard duties relating to the publication of such a journal, including editing, design and production, and distribution, and the keeping of accurate records of all receipts and disbursements relating to the production and distribution of this journal.

d) Newsletter Committee -- This committee shall be responsible for the dissemination of information about the activities of the organization throughout the editing, design and production and distribution of the quarterly newsletter, which shall be distributed to all members of the organization as outlined in Article II above. This committee shall work closely with all other committees as outlined here to ensure the dissemination of information regarding the activities of the organization. It shall keep appropriate record of all organization publicity, whether disseminated by this committee or any other committee. It shall also, in the newsletter, inform the membership of activities relating to the book arts but not sponsored by the organization.

f)Development Committee--This committee shall oversee the contenting development of the organization through the creation and implementation of both short and long range goals appropriate to the organization. It shall, as part of it duties, seek funding for the proposed plans or projects, stand shall consists of members present from each of the other standing committees, and shall work closely with these committees to ensure the continuity of already extant programs or projects, and the general growth of the organization. This committee shall be hired by the president of the organization, etc.

Section 3. Membership and Term of Office

All members of this organization shall be eligible for membership on any committee authorized in these by-law or otherwise authorize Board of Director. Each member of a committee shall continue as such until his or her successor is appointed, unless, the committee hall be sooner terminated, or unless such members shall cease to qualify as a member thereof. A committee member can be removed from his or her committee by majority vote of the remaining committee member, or by majority vote of the Board of Directors.

out of date; the most recent client and the only one supported by its developers in MCC's MacWAIS.) This section will describe how this interface works for the searching user.

WAIStation/MacWAIS

WAIStation was designed for use at KPMG Peat Marwick in 1990. Among the design requirements were that it be useful within 30 minutes by senior parterns, provide answers quickly, and support employees' work habits. Peat Marwick at that time would often send employees into the field toting Macintosh SE's for use as portable computers, so the interface was designed for a nine-inch monochrome screen, making minimal demands on CPU and memory. Furthermore, the client had to support slow modems and LANs.

WAIStation features three windows: the main query window, including fields for initial queries, relevance feedback and responses; a question window for saved questions; and a source window for saved sources. (MCC's MacWAIS makes some fairly substantial interface changes but is based on the same operational concepts.)

The WAIS system is based on a few central concepts that are supported in all clients and servers. These concepts are natural language queries, relevance feedback and ranked responses. It's important to realize that WAIS is a system and that client functions are only useful in as much as the server supports them and the protocol can transmit them. Advanced services tend to be implemented on the server side with nothing new required of clients to take advantage of them. (See the chapter on servers for more about advanced server features.)

While training on the Mac clients need take only a few minutes, some training is necessary. Most first-time users' reactions to the client is: "OK, what do I do now?" And indeed it's not immediately obvious.

To search with the WAIStation client, the user needs to indicate which sources to search. But first he or she needs to discover which servers are likely to provide good information. This is done through the Directory of Servers, a server maintained by Thinking Machines (NOT WAIS INC?). WAIS administrators around the world register their servers with the Directory of Servers, thus producing a kind of WAIS phone book. With 500-plus servers online as of this writing, an alphabetical listing of servers would not be particularly useful, so the procedure is to

freely consult with them concerning the activities of the corporation. He or he may sign, with the secretary of any other proper officer of the organization authorized by the Board of Directors, in the name of, the organization, all contracts and documents authorized either generally or specifically by the Board. He or she shall preside at the annual meeting of the members. The president hall supervise the executive secretary, and shall schedule and assign the secretary's services to other member of the board. Supervision shall include making recommendations to the board for the hiring performance review, salary administration, and dismissal of the secretary; but the board must confirm these actions by regular vote unless expressly waving this duty, ad hoc.
Immediately following his other term in that office, the vice president/president-elect shall succeed to one two-year term as president.

Section 5. Vice President/President Elect

The vice-president shall have such powers and duties as may be assigned to him or her by the Board of Director. In the absence of the president, the vice president shall, in general perform the duties of the president; and shall assist the president so as to learn the duties and protocols of the presidency.
The Vice president hall serve one two-year term. On the expiration of the president's term, or upon resignation or removal of the president, the vice-president hall become president.

Section 6. Secretary-Treasurer

The secretary shall act a secretary of all meetings of the Board of Directors, and hall keep the minutes of all such meeting in books proposed for that a purpose. He or she shall attend to the giving and serving of all notices of the organization, and shall in general attend to office affairs, including the keeping of records of membership. He or he shall have custody of all fund of the organization which may move into hi or her hands. He or she shall keep or cause to be kept full and accurate records of receipts and disbursements of the organization, and shall deposit all moneys and other valuable effect of the organization in the name and to the credit of the organization in such banks or depositories as the Board of Directors may designate. He or he shall at all reasonable times exhibit the corporate books and accounts to any officer or Director of the organization and shall, when required, give security for the faithful performance of his or her duties as the Board of director may determine. He or he shall be required to prepare an annual accounting statement which must be presented to the Board of Director at their annual meeting. He or shee shall perform, in addition to these duties, such additional duties as shall from time to time be assigned to him or her by the Board of Directors.

Section 7 ~~Assistant Secretary Treasurer~~ Publicacions Director

The assistant secretary-treasurer shall have such power and duties as may be assigned to him or her by the Board of Directors. He or she shall assist the secretary-treasurer in his or her duties and, in the absence of the secretary-treasurer , shall, in general, perform the duties of that office.

Article V. Committees

Section 1. Committees of Directors.

The board of directors, by resolution adopted at a duly noticed meeting, may designate an executive committee, which hall consist of two or more directors, and to the extent

search the Directory of Servers. (In fact, the SWAIS client for Unix does provide an alphabetical listing of available servers and the result is If the user asked the Directory of Servers, "Show me government science databases," a list of appropriate sources would be returned. *Figure 1.* (Each source file contains descriptive text, which the server searches for the requested keywords.) Double-clicking on a source icon opens up the text file, which provides description of the server, suggested keywords, pricing information and other information. *Figure 2.*

Figure 1: Searching the Directory of Servers

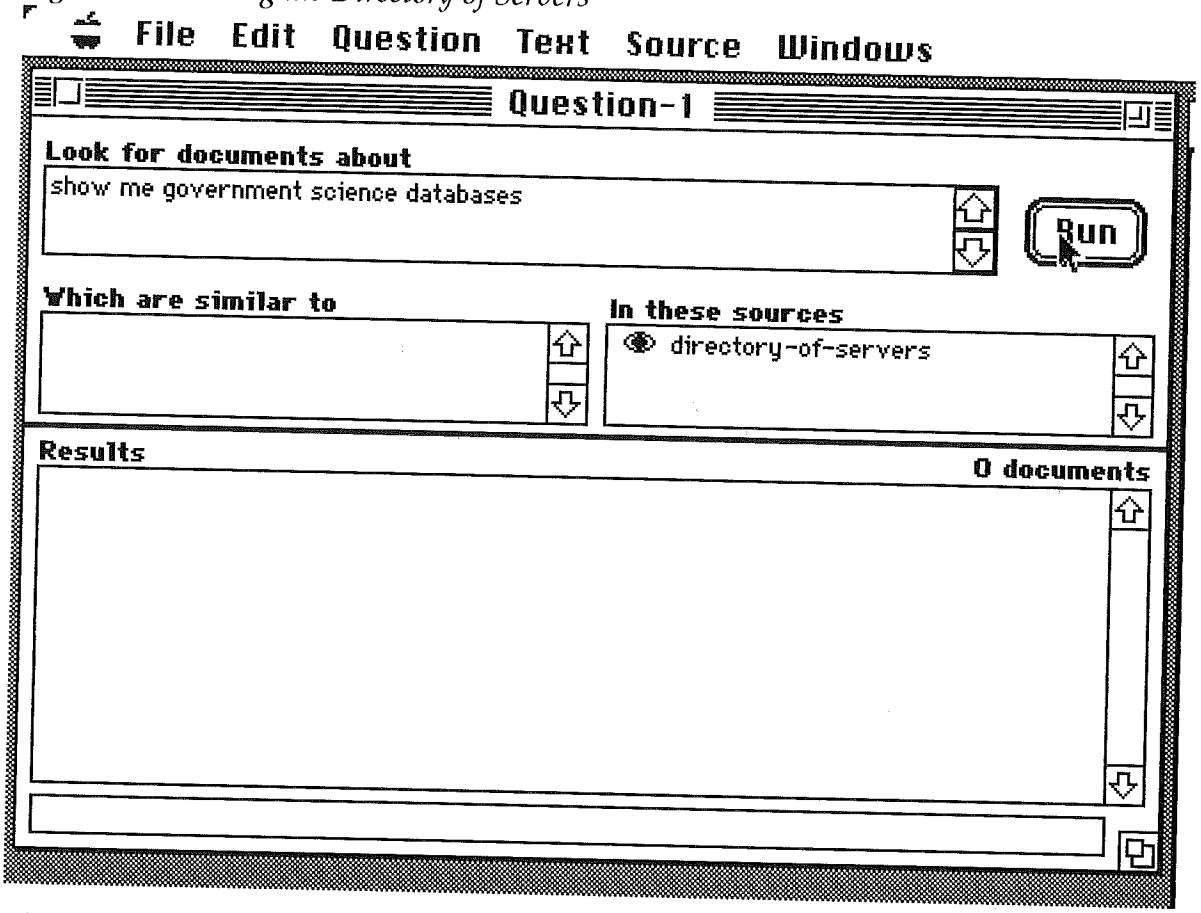


Figure 2: WAIS Source File

Section 7. Vacancies

Board members who wish to remove themselves from office may do so at any time provided that an acceptable and qualified replacement has greed to serve as a director.

Section 8. Compensation

No director of this organization shall receive, directly or indirectly any salary, compensation of emolument therefrom in hiss or her capacity as director; but the Board may authorize reimbursement of reasonable expenses incurred by Board members in connection with attendance at Board meetings.

Article IV; Officers

Section 1. Number and Qualifications

The officers of the organization shall be the President, the Vice-President/President-Elect, ~~the~~ Treasurer, and such other officers as the Board of Director may from time to time appoint. [On behalf of and with approval of the board, the president shall be authorized to appoint, and shall supervise a paid executive secretary, not a member of the board, to assist the president, other officers, and the board, in general administration of the organization. [With the exception of an executive secretary, and unless otherwise provided by the board,] Officers of the organization shall be elected from among the directors of the organization. No two offices may be held by the same person; but election to office and to the board may coincide; and officers may chair committees, as provided in Article V below.

No officer of this organization [with the exception of the executive secretary} shall receive directly or indirectly, any salary, compensation or emolument therefrom in his or her capacity as officer; but the board may authorize reimbursement of reasonable expense incurred by officers in connections with their duties.

Section 2. Terms of office.

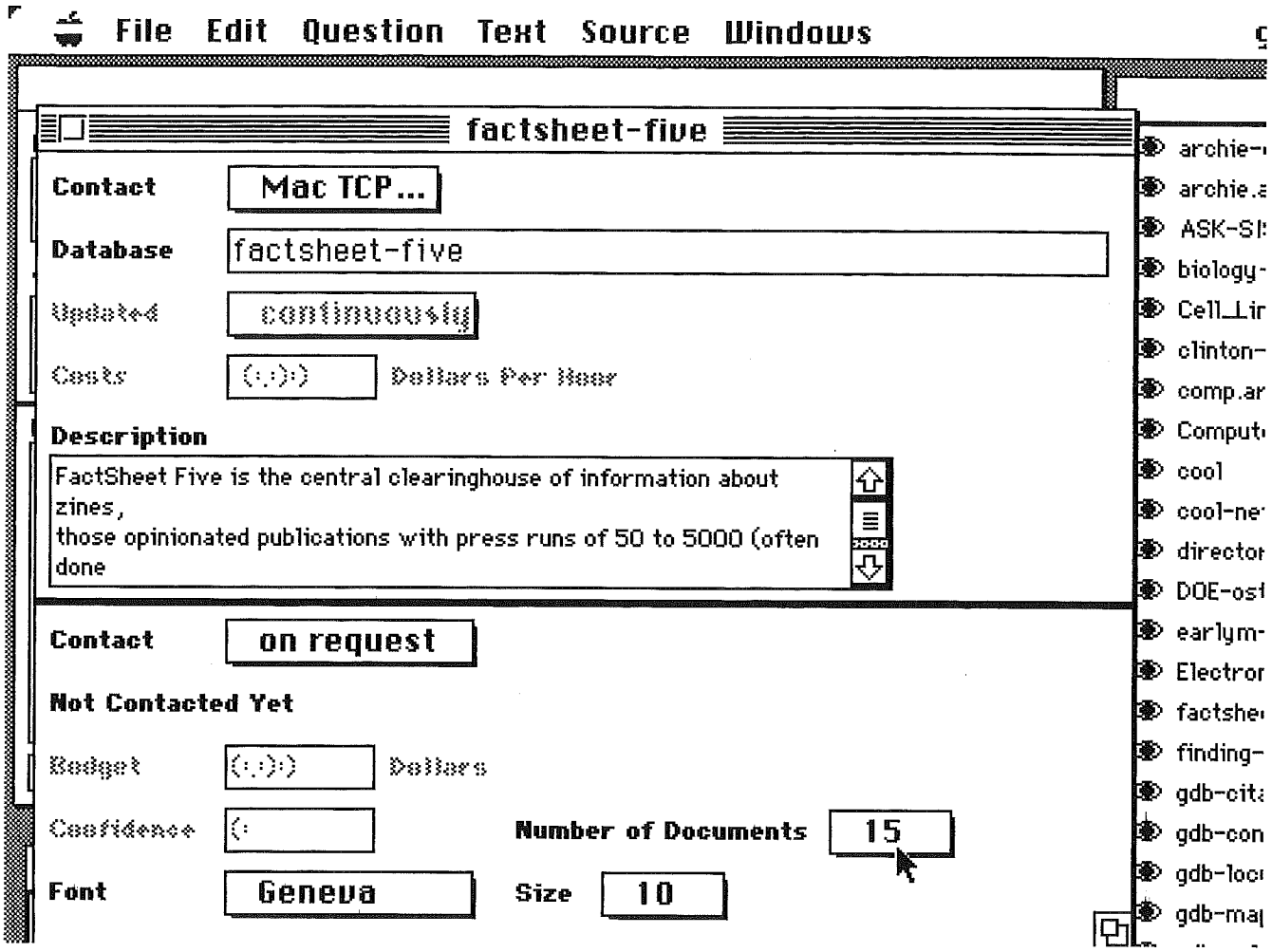
Officers of the corporation shall normally be elected biannually by 2/3 vote of the full Board of Directors (or by unanimous quorum of the Board) at their anneal meeting; or at a board meeting during the quarter following an irregular vacancy among the officers, except as provided in Section 5 below. The president may appoint acting officer to serve during the interregnum, as the administration need of the origination may dictate. Officer shall serve one two-year term in any one office, with these exceptions: officers elected to replace those stepping down more than halfway through their term may even the remainder of that term and, if re-elected, their regular term(s) ass well. The vice-president/president elect hall normally succeed to a second term on the board.

Section 3. Removal

Officers of the corporation may be removed and replaced by 2/3 vote of the board of directors then in office at any time.

Section 4. President

The president of the organization shall, in general, supervise and conduct the activities and operation of the corporation. The president hall have general supervision the office affairs of the organization, and shall keep the Board of Directors fully informed and shall



The user can then download the source simply by dragging it into the Sources window. This method takes advantage of the Macintosh's point-and-drag capabilities and is very easy to use. MacWAIS, on the other hand, uses a "mover" interface, which is less intuitive and forces the user to work with a separate interface for a single function. Clients on other platforms take different tacks, depending on the limitations of the system. In WinWAIS, a Windows client developed at the U.S. Geological Survey, the user selects a source and clicks a Save button to add it to the saved sources window. XWindows-based clients operate similarly, although SWAIS, the character-based Unix client, is considerably more unwieldy.[1]

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[1] For detailed instructions on using WinWAIS and SWAIS, including a rather harsh critique of SWAIS, see *Internet for Dummies* by Levine and Baroudi.

so far as these by-law permit, to assure reasonable continuity of institutional memory of the Board.
b) The initial members of the Board, named in the Articles of Incorporation of 3 June 1979 shall continue in office unless removed for just cause until they shall determine to set down, at which time they shall become Directors Emeriti for life.
c) The total number of Directors on the Board shall be 12 or as otherwise determined by 2/3 vote of the full board [or on a motion of the membership, ratified by a majority of the membership in attendance at the annual meeting or by written ballot]; board members shall be selected from the general membership of the organization.
d) Any member of the organization may submit nominations to the board to the president, who shall maintain a standing roster of nominees, to be brought forward in case of any vacancy on the board in addition to new nomination; and the president shall from time to time canvass the general membership for standing nominations, in anticipation of vacancies. A standing nomination shall be honored for at least four full quarters unless withdrawn by the nominee.
e)The normal term of all elected directors shall be two years; elected directors may serve no more than two (three?) connective terms, except that a director elected vice president/president-elect and confirmed as president hall always complete his or her term in office, remaining on the board the while. The same shall be true of other elected officers, who term as an officer shall always extend the term as director if necessary. The term of members of the board as of 1 May 1988 and of board member elected to fill irregular vacancies thereafter, shall expire on the fiscal year mid- or end- date next following their completion of not less than two year' service.
f) Vacancies the board shall be filled by 2/3 vote of the full board, or by unanimous quorum. The board shall normally elect successor to regularly retiring directors during the quarter preceding the end o their term; and fill irregular vacancies within the quarter in which they occur; but may, by 2/3 vote, postpone filling any vacancy on the board in order to submit satisfactory nomination to a vote of the membership, either by mail or at the annual General Meeting.
g) The board may dismiss its members for just cause, before the expiration of their term, by 2/3 vote. Just cause will include chronic delinquency in attendance at board meetings or to assigned duties as director; misrepresentation of the board or the organization; and misappropriation or unlawful handling of the funds of the organization.

Section 4 Meetings

must be held at least 4 times annually meetings may

Meetings of the Board of Directors ~~may be called~~ by the President or by any four (4) directors. The person or person authorized to call meeting of the Board my fix any place within the nine counties adjacent to San Francisco the place for holding any meeting of the Board calledby them.

Section 5 Notice

1991

Notice of any special meeting of the Board shall be given at least two days previous thereto by written notice delivered personally or sent by certified mail or telegram to each director at his or her address as shown on the records of the organization. If mailed, such notice shall be deemed to be delivered when deposited in the United States mail in a sealed envelope so addressed, with postage thereon prepaid. Any director may waive notice of any meeting. The attendance of a director at any meeting shall constitute waiver of notice.

Section 6. Quorum

Two-thirds of the members of the Board of Director shall constitute a quorum for the transaction of business at any meeting of the Board.

One of WAIS' strong suits is the ability to search multiple databases at the same time. This lets the user use the entire Internet as a resource, rather than having to become familiar with databases one by one.

Having selected one or more sources -- or, alternatively, the Directory of Servers -- the user types a plain-English question (it doesn't have to be in question form) in the query window and clicks on the Search button. In about two seconds a list of responses will be returned, including headlines and file size, and ranked in order of relevance (as the system sees it).

Double-clicking on any of the resulting documents will download and display the document in a separate window. WAIS supports all data types but not all clients can display all data. If the client can't display a certain file, it can still be viewed in another application that supports that data type. The Macintosh clients offer the most display options; see Table 1 below.

Text windows automatically scroll to the position which the server considers the most relevant part of the document. This allows the user to quickly determine if a file is useful. In order to perform well over slow communications channels (modems and slow LANs) the text is downloaded on demand in 15-line chunks. The keywords used in the query are automatically highlighted in bold.

Table 1: Data Types Supported by Macintosh Clients

Aldus Persuasion Slide
Apple PICT Image
Apple QuickTime Movie
ASCII Text
AT&T Multimedia Document
Device-Independent Printer Output
Graphics Interchange Format (GIF)
Microsoft Excel Spreadsheet
Microsoft PowerPoint Slide
Microsoft Word Document

determination of all questions and business which may come before the meeting, unless otherwise specified under the articles of incorporation or the bylaw of this organization.

Section 12. Liabilities of Members

No person who is now, or who later becomes a member of this organization shall be personally liable to its creditors for any indebtedness or liability and any and all creditors of this organization shall look only to the assets of this organization for payment

Section 13. Dues and Assessments

1990

Dues and assessments for the organization shall be collected from each member once per fiscal year, on a schedule to be determined by the Board. [or, STET, and upgrade annual billing procedures? or "shall be due from each member by the end of the first fiscal year quarter Dues for initial membership shall be pro-rated quarterly; continuing members who fail to pay dues within the first half of the fiscal year shall forfeit membership]

1991

Section 14. Membership Certificates

The Board of Directors may issue certificates of membership for each class of member

Article IV: Board of Directors

Section 1. Powers and Duties

The Board of Directors shall have general power to control and manage the affairs and part of the organization, and shall have full power by majority vote, to adopt rules and regulations governing the action of the Board of Directors and shall have full authority with respect to the distribution and payment of moneys received by the organization from time to time; provided, however, that the fundamental and basic purpose of the organization, as expressed in the articles of incorporation, shall not thereby be amended or changed, and provided further, the Board of Directors shall not permit any part of the net earnings or capital of the corporation to insure the benefit of any private individual.

The Board of Directors shall oversee the lecture exhibition and publications series of the organization and shall disburse and, through its appointed Treasurer, mange and account for such moneys s shall come from time to time to the organization -- including dues, sponsorship fees, contributions, and other income--for these and other purposes. The board shall determine the fiscal policies of the organization, assigning and authorizing, directly and through its officers, all uses and priorities of both current and prospective funds.

Section 2. Number, Qualifications and Terms of Office

1991

All actions of the board unless otherwise stipulated shall be taken by 2/3 affirming vote (including proxies), a quorum being in attendance. Two-thirds of the members of the board shall constitute a quorum for the transaction of business at any meeting of the board.

Section 3. Constitution of the Board

a)It shall be the general aim of the board in constitution itself to represent, as fully as possible, first, the range of arts and professions represented in the membership, second, in so far as practical, the geographical regions represented by the membership; and third, in

* Revised date

✓ Sox
✓ caps
✓ Board

By-laws of the Pacific Center for the Book Arts

January 1994
compiled by Kathy K Smith Note: changed #'s of articles

Article I: NAME

The name of this organization shall be the Pacific Center for the Book Arts.

Article II : PURPOSE

The purposes for which this corporation is formed are to provide education in the various fields of the book arts, including typography, printing, calligraphy, illustration, bookbinding, papermaking, conservation and printmaking; to provide a public forum for lectures and exhibits relevant to the book arts; to encourage the establishment of professional standards in the various book arts through exhibits and educational programs; and to engage in other activities necessary or incident to the above, but to engage only in activities which are charitable and educational and are entitled to charitable and educational status for tax purposes under federal, state and local law.

Article III: Members

Section I. Membership
There shall be six classes of membership in this organization. The first class shall be know as individual members, the second class as associate members, the third class as friends (alternate: patrons/benefactors), the fourth class as honorary members, the fifth class a lifetime members and the sixth class as corporate or institutional members.

Section 2. Qualification of Individual Members
All those interested in the book art and associated fields are eligible to join.

Section 3. Qualification of Associate Members
Associate membership is open to registered full-time students, individuals over the age of 62, unemployed people who are not self-employed and individuals receiving public assistance~~, are eligible for~~ associate membership at half the dues charged individual member.

stet

Section 4. Qualification of Friends Members
Friends shall be members contributing moneys in excess of two time annual dues.

Section 5. Qualification of Honorary Members
Honorary membership, for no more than two consecutive years, may be granted by the board to those individuals who make significant contributions to the organization. Honorary members receive all benefits of membership with a full waiver of dues.

Section 6. Qualification of Lifetime Members

PostScript (EPS) ?

Special FTP File Format

Tagged Interchange File Format (TIFF)

WAIS Question Format

WAIS Source Format

Sources are specially formatted text files which describe information servers and how to get to them. Double clicking on a source displays a window with several controls. The top part is information specified by the server itself -- a pop-up menu to specify the method of contacting the server (ip-address/tcp-port, modem number and speed, or location of a local index); a script to run after logging in (for use by modems); a database to search (servers can support multiple databases); a display of when the server is updated, how much it costs to search, and a textual description of the databases' contents. The bottom half of the source window allows the user to specify personal information about the server -- when to contact it (for automatic update); when it was last contacted; how much to spend on it; how much credence its results should be given (this is used to scale document scores, which helps in the sorting of responses to questions asked of multiple servers); the number of documents to ask for when searching it; and finally the font and type size to use when displaying plain text results (important to publishers). Several of these fields are merely place holders in the current implementation. In particular, budget and confidence have not been implemented yet since there are no for-pay servers yet, and the number of sources is still relatively small.

Sample Session

The metaphor for a WAIS search is conversation. Think of having your own personal librarian. The dialog goes something like this:

You: "I'm looking for information about how architects are using personal computers."

Librarian: "OK, I checked the artictecture and computing sections. Here are a dozen articles and books I found about your subject. I've underlined all the references to personal computers and architects."

Lifetime members include the founding members of the board and others who the board selects by unanimous vote based on contributions to the organization. Lifetime membership consists of permanent benefits with full waiver of dues.

Section 7. Voting and Other Rights of Members

a) All members of this organization, including, for institutional members, their designated representatives, shall be entitled to one vote.
b) All members, including institutional representatives, may participate in membership meetings, serve on committees established by the Board, submit their work for exhibition by the organization, participate in special events sponsored by the organization, and submit motions and nomination to the vote of the Board and general membership.
c) All members shall receive the organization's newsletter without charge, and be given special rates on the organization's publications and classes.
d) The members shall have other such rights as the Board of Directors may from time to time establish.
e)Membership in one class does not necessarily preclude the right of membership in another class, providing the member pays dues for the more expensive class.

Section 8. Annual Meeting

The annual meeting of the members of this organization shall be held at such place during the last quarter of each calendar year or at such other time as may be determined by resolution of the Board of Directors or their delegated authorities. Written notice of the time and place of the annual meeting shall be delivered personally to each member or sent to each member by mail or other form of written communication, charges prepaid, addressed to each member at his or her address as it is shown on the records of the corporation, or if it is not shown on the records or is not readily ascertainable, at the place where the meetings of the members are regularly held. Any notice shall be mailed or delivered at least five(5) days before the date of the meeting.

Section 9. Special Meetings

Special meetings of the members of the organization for any purpose or purposes may be called at any time by four(4) members of the Board of Directors, or by ten percent (10%) of the voting members of this organization.
Written notice of the time and place of special meeting of the members will be given in the same manner as for the annual meeting of the members. Actions taken at any meeting of the members of this organization, however called and noticed, shall be as valid as though taken at a meeting after regular call or notice of a quorum is present, and if, after the meeting, 2/3's of the voting members not present sign an approval of the minutes of the meeting. The approvals shall be filed with the corporate record or be made a part of the minutes of the meeting.

Section 10. Quorum

A quorum for any meeting of the membership shall consist of those in attendance, including members voting by mail and proxy. The Board of Directors shall with due notice solicit write-in nominations and motions, and advise the membership of the agenda for a meeting; and when appropriate shall circulate ballots for items and nominations put to vote.

Section 11. Action by Members

The affirmative vote of a majority off the active members represented and voting at a meeting shall be necessary for the adoption of a motion or resolution, and for the

You: "You know, I was looking through here and I found an interesting reference to I.M. Pei. I wonder if there's anything about Pei using computers?"

Librarian: "Here's a dozen things on taht subject."

You: "Ooh, this one is perfect. What else do you have like this one?"

And so it goes.

The initial natural language question becomes that starting point for give and take between the user and the server(s). Relevance feedback provides the context for the question. As the search proceeds, some results may suggest alternative searches or branches of the conversation. This is provided for by allowing several questions to evolve at the same time.

Let's go through a sample session to understand how WAIS works from the user's perspective:

The first stage is to find appropriate sources. Ask a question of the directory of servers: "What sources are there about politics?" The directory of servers will search all the fields in the source text files and respond with a ranked list of sources for that subject.

To use any of those sources, you need to download the source files. On the Mac you do that by simply dragging the source icon from the results window to the the sources window. Now you're ready to ask questions:

You can query one souce or several at the same time. Drag the sources you're interested in to the "In these sources" field. Type in a question in the "Look for documents about" field. Click Run. WAIS now goes out to each of the sources -- one might be in New Jersey and another in Australia -- and searches the databases for files that contain your keywords. Ranked headlines of files appear in the Responses window. Just double-click on any document icon to open the file. If its ASCII format, it will open automatically. If it's in another format you'll need to run a viewer to read the file.

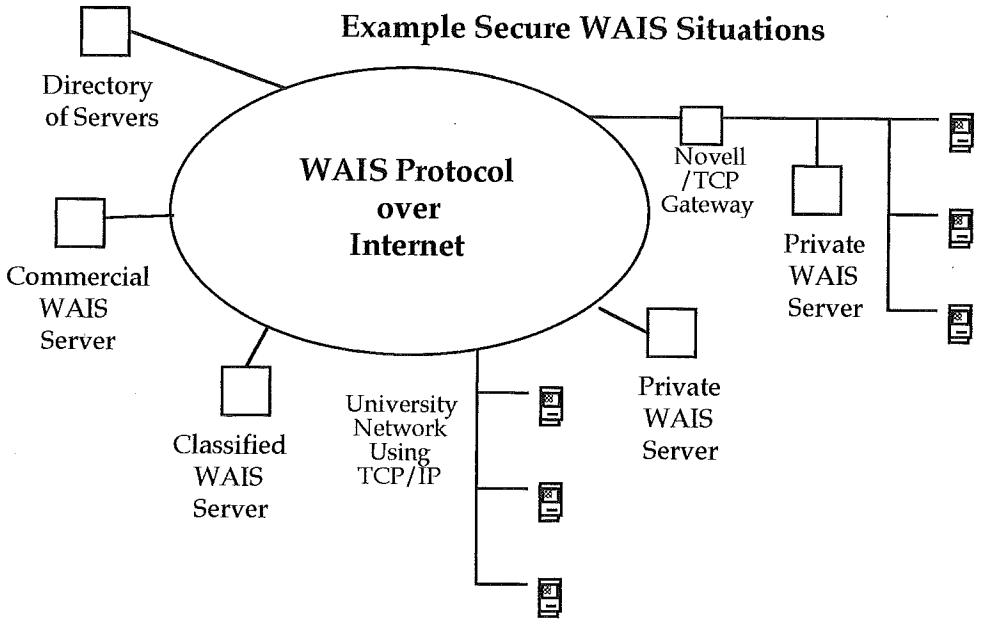
For relevance feedback, just highlight a sentence or paragraph. A small icon appears, which you can drag into the "Which are similar to" window and Run again.

The WAIStation and WAIS for Mac clients are now in use by over x users in xcountries. Brewster: we should do a ranking of popularity of clients/platforms. Also a chart of clients and configuration requirements. Common user complaints center around configuring MacTCP,

authentication and not encryption is exportable. Therefore, if the system were just used to positively identify users and servers and not hide messages passing between them, then this can be exported freely. When the system is used to hide the messages, then export controls do become applicable. We must understand more about the nature of these restrictions.

In summary, public key systems can be very useful in providing security in the WAIS system.

How Public Key is Used in WAIS



The public key system is used in WAIS to determine identity of users, and possibly to hide the content of messages passing over the network. In this way, secure billing systems as well as classified infrastructures can be built on top of insecure WAN networks. This section describes the different modes of WAIS use and how they are implemented in the WAIS client-server system.

Modes of Determining Identity on a Wide Area Network

Restricting access to databases is sometimes necessary for proprietary, classified, or commercial reasons. These restrictions to databases might be based on individual users or on groups of users (such a employer or department). The need to reliably identify a user on a wide area network is necessary to implement the different restriction policies. Balancing the need for security with ease of use has lead to the development, in this design, of three levels of securing identity.

Secure WAIS: Public Key Encryption in the WAIS Electronic Publishing System

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WAIS Inc Confidential
Draft 11/26/93
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This document describes how public key encryption can be incorporated into the WAIS system in order to add security, authentication, and a mechanism for billing. The resulting "Secure WAIS" system would allow back compatibility with unsecured databases and clients.

This is a working document that is meant to structure a discussion on how this functionality should be use in the WAIS application. Please comment.

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using (the undocumented) directory-of-servers, and avoiding a bug requiring the software to be installed on the start up disk (fixed in WAIS for Mac?)

GNU/EMacs

The WAIS interface on GNU-Emacs/Unix (GNU) was developed specifically for the Internet experiment for a technically strong user population. The reasons it was developed were: the large number of emacs users, the extensibility, the ubiquitous nature of character display terminals, and the component nature of emacs which meant WAIS could be integrated into email, bboards, and programming tools.

The design of the interface was a cross between WAIStation and other emacs interfaces. The direct manipulation of WAIStation was replaced by command keys, as is common in emacs applications. The choice of command keys were modeled on the dired and RMAIL emacs applications.

GWAIS allows users to access the interactive features of WAIS: question entering, relevance feedback, displaying document, and source selection. An extra feature, not found in the other interfaces, is an interface to an indexer for creating sources, but it appears that this feature is not heavily used. Furthermore it allows questions to be saved, but it depends on the user to automate the update of questions and sources using cron or other Unix tools. Graphic documents can be displayed on X Windows terminals if the user has set up the environment variables.

Figure 8 The GWAIS interface, displaying the results of a relevance feedback search.

SWAIS - 1 graf

To open WAIS to a wider community of users, an interface was developed to run on dumb terminals or over telnet sessions. It is called "SWAIS" for Screen WAIS since it is uses a character display terminal screen for the interface. The user communities that this interface can serve are dial-in users, telnet users, and low-end terminal users.

The design of the interface involved 3 screens: a single screen listing all known servers that the user could pick from; a list of search result documents headlines; and a document display screen. Listing all servers and allowing users to pick which servers to use encourages users to

Overview of Public Key Encryption

Public key encryption is a technique for secure communications between computers without requiring a special key for each combination of machines. In this way, a computer, A, will use the public key of the other machine, B, to send a message, and only B can read the message. Furthermore, A can sign the message so that B knows that A sent it. [Diffie 88]

This is desirable in a distributed client-server system like WAIS [WAIS 93] to ensure identity so that only authorized users will have access to certain databases, as well as ensuring that no one can spy on the messages between client and server.

Public key encryption is only one way to do this, where systems such as Kerberos [cite MIT] is another system that could be used. Kerberos has been integrated with WAIS by MCC in Austin Texas as part of their EINet product. The Kerberos system and public key are similar in their goals, but are quite different in implementation. One advantage Kerberos has over public key encryption is that the underlying technology is not patented and therefore can be freely distributed, where the public key software is patented and must be licensed.

Public key has the advantage over Kerberos in that a centralized server does not have to be contacted at the start of each client-server session. This means that a client just has to talk with the server to make a search or retrieval. Removing the need for a central service that must be contacted often is desirable.

Kerberos is often the right choice for encryption and authentication. While this design does not describe how Kerberos would be integrated into WAIS, neither does it suggest that this is the only security system that should be used with the WAIS application. This design describes the use of public key technology with the WAIS application

There is a set of algorithms of the public key system that is widely used called the RSA algorithms [Diffie 88]. A commercial company, RSA Data Security, Inc. [RSA 93], offers code that implements the RSA algorithms as a toolbox that can be licensed. Commercial support for this code can be an advantage for producing commercial systems. The terms of these licenses are flexible and not negotiated yet. The terms of the license will determine how useful this system is to the WAIS community.

The encryption technology is also subject to export controls by the United States government. As RSA Technologies has explained the use of public key for

ask questions of multiple servers. Unlike the other interfaces, the sources list shows what site runs it and how much it costs (if anything). The resulting document screen includes headlines and how many lines it is, but its innovation is to show what source it came from.

It does not handle relevance feedback or downloading new sources from the directory of servers. Another drawback is using it with large numbers of sources since moving around the list requires scrolling. On the other hand, this server has proven to be very popular on the Internet because of its ease of use, all a user has to do is telnet to a specific machine to use it.

Figure 9 The SWAIS query building screen. The poetry source is selected, and search terms are entered. This interface does not currently support relevance feedback.

Figure 10 The SWAIS help screen.

Figure 11 A document displayed in SWAIS.

Windows - 1 graf spatial searching

Next - 1 graf

custom clients>>>>alien client

wais browser>>>gorilla

mosaic

Explorer SW

Via Gopher

Introduction

While WAIS is a flexible and powerful means of finding specific information, it's not much help in exploring what data exists on a given database. This ability, akin to browsing through the stacks in a library or perusing a book's table of contents, helps users orient their searches. Is this a technical database or a scholarly one or one of general interest articles? A browsing structure tells the reader the scope of the database and generally what subject areas exist.

The most popular browsing is the Internet Gopher, introduced by University of Minnesota. It uses a hierarchical filing system, so that when first entering an area a user may be shown several areas in the database. Within each area, typically depicted by a folder, there are

Other Issues

Publicity

Develop list for publicity - try to get into Pink Pages
Calling Campaigns
Public Library
Self Promotion / Calendar / Ampersand / Post Cards - what can we do to improve
articles? are there any?

Volunteer Development

Job descriptions:
- Calendar
- Auction

Sources:
- United Way
- Newspaper Ads
- Schools (State/JFK U)
- Postings (public library/bookstores)

New Program Ideas

Summer School

Need Chairman
Come up with a list
3 weeks with 2 day workshops

Quarterly Meeting

Part of 'Programs'

Annual Membership Directory

Part of Membership Chairman's duties

Source Book (for the Bay Area)

Need Chairman

Miscellaneous

Print Week 1994 - 3rd week of Jan.
Bay Area Book Festival
Wayzgoose